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## Hardball-hardbat: A call for change from aluminum to wooden baseball bats in the NCAA

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Ever since hits and home runs increased significantly after a leading aluminum bat manufacturer introduced the ABlack Magic® bat in 1985, a controversy has raged in the National Collegiate Athletic Association (NCAA) concerning the use of aluminum baseball bats. The first Abat summit® with members of the NCAA Baseball Rules Committee and executives of aluminum-bat manufacturers was held in the summer of 1994. From this point on it was evident that the ability of manufacturers to manipulate the size and weight of baseball bats created an injury hazard and a player-development problem for collegiate-level baseball players. Although small steps have taken place to limit the hazardous equipment, a final solution would be found in a mandate by the NCAA for its member institutions to make a permanent and exclusive switch from aluminum bats to wooden bats. Specifically, this mandate should be directed to those programs at the Division I level where the baseball players are strong enough, fast enough, and skilled enough to injure one another by their use of aluminum bats.

### CALL FOR CHANGE: PLAYER SAFETY

Baseball bat manufacturers, through advances in modern technology, have been able to create aluminum bats that are lighter in weight than wooden bats yet still meet the required measurement and size standards. These lighter bats allow for faster bat speeds during swings that result in a greater hit-ball velocity. Because the ball exits the aluminum bat with a higher velocity than would a ball from a wooden bat, there is naturally a greater danger of injury to defensive players. AAny idiot can see that the ball jumps off an aluminum bat faster than off of a wooden bat,@ said Jim Morris, head baseball coach at the University of Miami. AThis favors hitters but is obviously dangerous to pitchers and infielders@ (Heavy Metal, p. 27, 1997).

Although the NCAA is aware of the danger involved with aluminum baseball bats, the organization has refused to make a permanent switch to wooden bats. The rationale postulated by the NCAA for its stance is that there are risks in all sports and that pitchers and infielders are aware of those risks (Bloomberg, 1998). While the NCAA is steadfast in opposing a switch, its Baseball Rules Committee did agree in 1998 to stricter guidelines on performance standards for aluminum bats in order to provide a safer player environment. The committee had received research that illustrated the recent rising rate of serious injury to pitchers from batted infield line drives. The new standards prohibit the development and use of an aluminum bat that produces a batted ball speed of over 93 miles per hour. The interesting fact here is that this was the established standard for wooden batted ball

### Other Articles In This Issue:

- Ethic in Coaching?
- "The road to success comes through hard work, determination, and personal sacrifice."
- British Soccer Superhooligans: Emergence and Establishment: 1982-2000

speeds. The obvious question here is, instead of creating wooden bat standards for aluminum bats, why not just use wooden bats?

Easton Sports, Inc., one of the industry's leading aluminum bat manufacturers, filed a restraint-of-trade lawsuit against the NCAA and is seeking \$267 million in damages and injunctive relief. The suit was filed in the United States District Court in Kansas City, Kansas.

Ultimately, the adoption of revised aluminum-bat regulations brought lawsuits from aluminum and wooden bat manufacturers who sued under the premise that the NCAA had conspired to lock the other out of the bat market (Hawes, 2000). The Baum Company, a manufacturer of wood composite baseball bats, claimed the NCAA aluminum standards were lax and that in addition to being unsafe, aluminum bats were also preventing the Baum Company from selling wooden bats to NCAA schools (Kan, 1999). The Baum Company also accused the NCAA of conspiring with aluminum bat manufacturers in order to eliminate competition from wooden bat makers. In this case, the court ruled that the NCAA's refusal to change rules further or to ban aluminum bats is lawful (Kan, 1999). As a result of the Baum Company ruling, Hillerich and Bradsby and Easton Sports, Inc., the industry's leading manufacturers of both aluminum and wooden bats, dropped their restraint-of-trade lawsuits against the NCAA. Within the ruling against the Baum Company the court illustrated how the NCAA had the lawful right of refusal and the lawful right to adopt bat standards for the protection of players (Kan, 2000). Therefore, the NCAA has the right to modify its aluminum-bat requirements or make the switch to wooden bats.

In July of 2000, the NCAA Baseball Rules Committee ruled that there would be no immediate changes in the specifications for manufacturing baseball bats. This rule was based on the recommendations of the NCAA Baseball Research Panel, which reviewed results from laboratory testing and performance during the 2000 intercollegiate season. Don Kessinger, associate athletics director for internal affairs at the University of Mississippi and chair of the rules committee, stated that the recommendations of 1999 restored balance to the game and made the aluminum bats perform more like wooden bats.

While higher standards are better than no standards, because the standards can be circumvented there is a need for the outright elimination of the use of aluminum bats at the college level. A recent study by the University of Massachusetts found that a loophole exists in the new aluminum bat standards (Hawes, 2000). This research shows that it is possible to physically change the center of swing gravity with an aluminum bat. This is done using a technological weight-shifting technique in manufacturing the aluminum bat. This center of gravity change allows the aluminum bat to still meet bat standards but when used in the field, the batted ball speed may greatly exceed the standard ball exit speed. With wooden bats, however, it is not possible to shift the center of gravity in order to achieve this advantage. This loophole in the aluminum-bat rules will allow manufacturers to create an aluminum bat capable of harder hits which will again lead to a greater safety hazard for infielders and pitchers (Hawes, 2000).

#### **CALL FOR CHANGE: PLAYER DEVELOPMENT**

Although potential injuries are the most important factor, there are other reasons that call for a switch to wooden bats. Studies show that with an aluminum bat, a hitter can make contact with the ball at almost any point on the bat and achieve the same effect as a hit on the sweet spot of a wooden bat (Forbes, 1998). This fact is evident by an examination of offensive production. Over the last five years (1995-1999), batting averages, scoring, and home runs have all increased in NCAA baseball. Batting averages increased to .301 (from an average of .296 over the

previous 15 years), scoring jumped from 6.49 to 6.81 per game, and home runs from .80 to .91 per game. Therefore, not only are aluminum bats lethal against defensive baseball players, they are also distorting the development of college pitchers who have to use drastically different strategies when pitching against players using aluminum bats than they would if they were pitching against players using wooden bats. This is creating development problems for pitchers who are trying to make the transition from collegiate-level pitching to professional-level pitching where the only bats allowed are wooden.

There are also batter-development issues at stake. Many young baseball players use their college baseball careers to refine their skills in attempts to prepare for professional baseball. Fortunately, the extensive farm system of Major League Baseball allows many Division I players opportunities to play at the professional level. Wooden bats, which are used exclusively by professionals, are much more challenging to hit successfully with than are aluminum bats. The banning of aluminum bats and the use of wooden bats in the NCAA at the Division I level would help college baseball players become better prepared for either possible failure or a possible future in professional baseball (Killer Bats, 2000).

A prime example of this case is that of Marshal McDougall, a second baseman at Florida State University from 1998 through 2000. In May of 1999, McDougall hit six home runs and collected 16 RBI and 25 total bases in a game against the University of Maryland. All three of these feats, which are all NCAA records, were accomplished through the use of an aluminum bat (Bechtel, 2000). For the year, McDougall used his aluminum bat to secure a .419 batting average and record 28 homeruns. Despite the outstanding game and season, baseball teams passed on McDougall until the 26th round of the 1999 draft. Pro baseball scouts feared that he might not make the immediate impact they needed from a higher-round draftee. They also feared he would have a difficult adjustment to the use of wooden bats. In McDougall's first summer of minor-league baseball, their skepticism was affirmed as his wooden bat produced only a .248 batting average and one home run. Most likely, an NCAA wooden-bat mandate would have never allowed for McDougall's six home run game. However, if he had been allowed to play and practice with a wooden bat over his college career, he would have been much better prepared for the wooden-bat demand of professional baseball.

#### **CALL FOR CHANGE: COST**

Lastly, when a mandate such as this is suggested, the question of cost also becomes an integral issue. It can't be argued that aluminum bats last longer than wooden bats and can be used in games for several years. In fact, a \$1200 investment in aluminum bats can be enough for an entire team and will last three to five seasons. Conversely, a \$1200 investment into wooden bats might not last one whole season. Because of the obvious differences in cost, the proposed mandate for change from aluminum bats to wooden bats is directed only at the elite level Division I teams. The Division II and Division III levels of non-elite athletes do not pose the same high risk of injury as do the players in the Division I programs. Furthermore, Division I programs that are top-25 caliber would have the added benefit of receiving sponsorships from wooden bat manufacturers.

Unfortunately, the non-elite Division I teams would have to adjust and absorb the cost of wooden bat use. For the safety and development of their players, however, this would have to be accepted. Division I hockey programs do not try to save money by wearing hockey helmets without face shields. That would be unsafe. Universities do not complain about the cost of football helmets. Swimming programs do not stop using chlorine in the pools to save money. It is then very justifiable to ban aluminum bats and

spend the extra money to use wooden ones. The health and safety of the student athlete, in addition to the development of his skills, should be the primary concern.

### CALL FOR CHANGE

The solution to this baseball conundrum is for the NCAA to institute a ban on the use of aluminum baseball bats at the Division I level of competition. There are several reasons for this suggested mandate for change. Because the exit speed of a baseball hit off of an aluminum bat is much faster than the exit speed of a ball hit off of a wooden bat, the safety of players (infielder and pitchers) should be reason enough for a change. There is also a need for a switch from aluminum bats because the use of wooden bats would contribute to the development of college baseball players, both the hitters and pitchers. Furthermore, if the NCAA wants to move in the direction of an aluminum-bat mandate, it has the legal authority to do such. The Association can lawfully institute such a ban under legal product selection. Finally, although the change might increase equipment costs for some institutions of higher learning, the cost is a minor price to pay for the safety and development advantages that would be obtained through the use of wooden bats.

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## IT'S A DIFFERENT GAME

(Part 6- the 2002 Season)

## Aluminum Bat Performance vs Wood Bat Performance

November, 2002

Coach Bill Thurston  
Amherst College

This is the **sixth** in a series of statistical studies comparing wood bat performance to that of the high-tech aluminum bats. As in the previous five studies, only Division I hitters and pitchers were included. Hitters had a minimum of 70 at-bats in the Cape Cod League; pitchers had a minimum of 25 innings pitched, which means only regular players were considered. There were a total of 94 Division I hitters and 74 Division I pitchers who met the criteria. The same players using NCAA statistics (aluminum bat) were compared to their Summer Cape Cod League statistics (wood bats). Thus, the comparison is for the **same players during the same year, the major variable being the bat.**

The difference in offensive performance in 2002 from the aluminum to the wood bat is dramatic. Comparisons were made using 94 Division I hitters in the following offensive categories.

<u>Offensive Statistics</u>		<u>With Aluminum</u>	<u>With Wood</u>	<u>Difference</u> <u>(using wood)</u>
<u>-2002 Stats-</u>				
I	Batting Average	.333	.231	Minus .102
II	Slugging Percentage	.518	.318	Minus .200
III	Home Runs per at bat	1/29	1/75	Down .61%
IV	Runs scored per at bat	1 /4.4	1/8.9	Down .51%
V	RBI per at bat	1 /4.9	1/10.3	Down .52%
VI	Strikeout Percentage	15.8%	24.6	Plus 8.8%
VII	Base-on Balls	11%	9.4%	Minus 1.6%

## Pitching

<u>Pitching Statistics</u>	<u>Aluminum</u>	<u>With Wood</u>	<u>Differential</u> <u>(using wood)</u>
<u>-2002 Stats-</u>			
E.R.A.	4.28	2.48	Minus 1.80 E.R
Hits/9IP	9.3	7.2	Minus 2.1 Hits
K's/9IP	7.3	8.4	Plus 1.1
BB's/9IP	3.1	3.0	Minus 0.1
Opponent Bat Average	.266	.220	Minus .046

From this statistical analysis, it is unquestionably evident that during actual game use, **aluminum bats dramatically out perform wood bats** (See page 6 for various stats over a six (6) year period.) One has to question the reliability of the results of various lab test comparing the performance of wood and aluminum. In the case of the Baum Hitting Machine Test, we know that the test was compromised by comparing a heavier (34oz) wood bat to an aluminum bat weighting 29.8 ounces. On a fixed swing speed machine, both bats, regardless of weight, are swung at an identical speed; therefore, the more mass, the higher exit speed. Of course a batter cannot swing a heavier unbalanced bat as fast, or control the swing as well as a lighter, better balanced bat.

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According to Professor James Sherwood (the test administrator), scaling the weight of the aluminum bat from 29.8 to 34oz. could theoretically result in ball exit speed of **113.25 Mph**, a difference of plus **16.37 Mph with a comparable aluminum bat**. Plus, metal bats have a sweet spot typically 4 times greater than wood (thus the ball is high faster more frequently).

I believe another factor with the test that prevents the results from correlating to actual performance in the field, is that the **swing and pitch speeds are set so low** that a collision force of 132 Mph does not trigger the trampoline effect in aluminum bats. The collegiate game is played at speeds of 160-180Mph.

Until the **M.O.I. of aluminum bats** is mandated to match that of the various length of pro wood bats, the performance, and more importantly batted ball exit speed, will never be like wood. **It is obvious, even with the recent changes in bat standards by the NCAA, there continues to be major differences in bat performance on the playing field.**

The following charts demonstrate the dramatic differences in actual games between aluminum and wood bat performance during the **2002 season**:

#### I. Batting Average

With Aluminum			With Wood	
Batting Average	Number	%	Number	%
.400 - .449	4	4%	0	0
.350 - .399	25	27%	0	0
.300 - .349	37	39%	6	6%
.250 - .299	23	24%	26	28%
.200 - .249	5	5%	33	35%
.150 - .199	0	0	24	25%
.100 - .149	0	0	5	5%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

#### Major Differences

With **Aluminum Bats**  
**70% of batters hit over .300**  
**0% hit under .200**  
 Range: high **.428**  
           low **.212**  
 Bat Average of **-.333**

With **Wood Bats**  
**6% hit over .300**  
**31% hit under .200**  
 Range: high **-.348**  
           low **-.143**  
 Bat Average of **-.231**

Difference of minus **.102** points using wood bats.



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**II. Slugging Percentage**

Slugging. %	With Aluminum		With Wood	
	Number	%	Number	%
.700+	2	2%	0	0
.650 - .699	5	5%	0	0
.600 - .649	16	17%	0	0
.550 - .599	9	10%	0	0
.500 - .549	16	17%	1	1%
.450 - .499	16	17%	4	4%
.400 - .449	16	17%	11	12%
.350 - .399	9	10%	14	15%
.300 - .349	4	4%	23	24%
.250 - .299	1	1%	17	18%
.200 - .249	0	0	17	18%
.150 - .199	0	0	6	6%
.100 - .149	0	0	1	1%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

**Major Differences****With Aluminum Bats**

-51% had slug % over .500

-1% had slug % under .300

Slugging % = .518

**With Wood Bats**

-1% had slug % over .500

-44% had slug % under .300

Slugging % = .318

Difference minus -.200 points with wood bats

**III. Home Runs per Times At Bat**

Home Runs By at Bats	With Aluminum		With Wood	
	Number	%	Number	%
1/1 - 1/9	1	1%	0	0%
1/10 - 1/19	21	22%	2	2%
1/20 - 1/29	17	18%	7	7%
1/30 - 1/39	12	13%	8	8%
1/40 - 1/49	7	7%	6	6%
1/50 - 1/59	5	5%	5	5%
1/60 - 1/69	8	8%	3	3%
1 in over 70 AB's	20	21%	26	27%
0 in over 70 AB's	3	3%	37	39%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

**Major Differences****With Aluminum Bats**

-Hitters average a HR every 29 AB's

-24% of hitters had 1 or 0 HR's per 70 AB's

-40% of hitters had a HR in every 29 AB's

**With Wood Bats**

Hitters average a HR every 75 AB's

-67% of hits had 1 or 0 HR's every 70 AB's

-10% of hitters had a HR every 29 AB's

Using wood bats, home runs decreased by .61%



IV. Runs Scored per Times at Bat

Runs Scored by At Bat	With Aluminum		With Wood	
	Number	%	Number	%
1/1 - 1/2.9	2	2%	0	0%
1/3 - 1/4.9	58	62%	1	1%
1/5 - 1/6.9	26	28%	10	10%
1/7 - 1/8.9	8	8%	27	29%
1/9 - 1/10.9	0	2%	28	30%
1/11 - 1/12.9	0	0	11	12%
1/13 - 1/14.9	0	0	8	8%
1/15 - 1/16.9	0	0	4	4%
Over 17 at bats	0	0	5	5%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

Major Differences

With Aluminum

64% of hitters averaged scoring  
a run in every 5 AB's  
Averaged a run in every 4.4 AB's

With Wood

1% of same hitters averaged a run in  
every 5 AB's  
Averaged a run in every 8.9 AB's

Difference of minus -.51% using wood

V. Runs Batted In - per Number of at Bats.

Runs batted In by At Bats	With Aluminum		With Wood	
	Number	%	Number	%
1/1 - 1/2.9	3	3%	0	0%
1/3 - 1/4.9	47	50%	1	1%
1/5 - 1/6.9	32	34%	7	7%
1/7 - 1/8.9	9	9%	20	21%
1/9 - 1/10.9	3	3%	15	16%
1/11 - 1/12.9	0		19	20%
1/13 - 1/14.9	0		13	14%
1/15 - 1/16.9	0		5	5%
1/17 - 1/18.9	0		3	3%
19 or over	0		11	12%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

Major Differences

Using Aluminum

-53% of hitters average an  
R.B.I. in under 5 AB's  
-3% of hitters needed at least  
9 AB's for an R.B.I.

Using Wood

-1% of hitters averaged  
an R.B.I. in under 5 AB's  
-70% of hitters needed at  
least 9 AB's for an R.B.I.

Overall, hitters using aluminum bats drove in twice (2 times) the number of runs than when using wood bats.

Percentage of Strikeouts	With Aluminum		With Wood	
	Number	%	Number	%
41 - 45%	1	1%	4	4%
36 - 40%	0	0%	5	5%
31 - 35%	1	1%	14	15%
26 - 30%	4	4%	22	23%
21 - 25%	16	17%	20	21%
16 - 20%	27	29%	19	20%
11 - 15%	28	30%	10	11%
6 - 10%	17	18%	0	0%
0 - 5%	0	0%	0	0%
<b>Total</b>	<b>94</b>	<b>100%</b>	<b>94</b>	<b>100%</b>

### Major Differences

#### Using Aluminum Bats:

-Hitters struck out **15.8%** of AB's  
 -**02%** of batters struck out over **30%** of AB's  
 -**77%** of batters struck out under **20%** of time

#### Using Wood Bats:

Hitters struck out **24.6%** of AB's  
 -**24%** struck out over **30%** of AB's  
 -**31%** of batters under **20%** of time

Using wood bats, batters struck out **8.8%** more frequently.

### VII. Quality of Pitchers; Quality of Hitters

A few people like to claim that the reason for lower batting average (minus .102 points?) in the Cape Cod League is because the pitching is so much better than on collegiate staffs. But, the hitters in the Cape League are also much better than in a college line-up. I don't believe managers and general managers only attempt to sign good pitchers. They also go after the top hitters on various college teams. In the Cape Cod League, it's **better pitching versus better hitting. It's all relative.**

Based on their college batting average, I compared how hitters ranked versus their college teammates.

#### Number hitter:

1 - 12 first	4 - 6	7 - 9
2 - 20 2 <sup>nd</sup> <b>42%</b>	5 - 9 <b>23%</b>	8 - 6 <b>19%</b>
3 - 8 3 <sup>rd</sup>	6 - 7	9 - 3
		Above 10 - 15%

- Remember, there are 9 hitters in each line-up.

Pitchers: They are ranked on their college staff by number of innings pitched. On most college staffs, 75 to 85% of the total innings are pitched by the top five (5) pitchers.

Number 1 - 16	4 - 6	6 - 4
2 - 18 <b>59%</b>	5 - 7 <b>18%</b>	7 - 9 <b>23%</b>
3 - 10		8 or above - 4

During the college season (vs. aluminum bats), in 2001, **42%** of the pitchers had losing or 500 seasons. In 2002, **30%** of the pitches had losing or 500 seasons vs aluminum bats. Those pitchers were not really dominant, but many became dominant pitchers when pitching against wood bats.

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**Six Year Comparative Study**

Using the same criteria for Division I hitters and pitchers who played in the summer Cape Cod League, the bat performance difference between aluminum and wood bats is consistent and dramatic. **Same player, same year, the major variable, the bat.**

**A. Comparison of Batting Averages:**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	<b>Approx.</b>
1997	339	.232	-.107	6 year Average
1998	329	.247	-.082	
1999	334	.248	-.086	
2000	325	.239	-.086	
2001	316	.232	-.084	
2002	333	.231	-.102pts	minus.091 points

**B. Comparison of Home Runs, by number of at Bats:**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	
1997	1/25	1/74	-.66%	minus .61%
1998	1/25	1/72	-.65%	
1999	1/25	1/57	-.56%	
2000	1/32	1/76	-.58%	
2001	1/37	1/96	-.61%	
2002	1/29	1/75	-.61%	

**C. Slugging Percentage:**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	
1997	.551	.325	-.226	minus .190 points
1998	.527	.350	-.177	
1999	.542	.345	-.197	
2000	.501	.330	-.171	
2001	.470	.304	-.166	
2002	.518	.318	-.200pts	

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**D. Comparison of Strike Outs (Batters)**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	<b>Approx.</b>
1997	17%	24%	plus 7%	6 year average
1998	-	-	-	
1999	-	-	plus 5%	
2000	16%	22%	plus 6%	plus 7.3%
2001	15%	24.5%	plus 9.5%	
2002	15.8%	24.5%	plus 8.8%	

**E. Runs Scored per Times at Bat**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	
2000	1 /4.5	1/7.4	minus - 39%	
2001	1 /4.8	1/9.4	minus - 49%	minus .47%
2002	1 /4.4	1/8.9	minus - 52%	

**F. Runs Batted in per Number of at Bats**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	
2000	1/5.0	1/9.0	minus - 45%	
2001	1/5.3	1/10.7	minus - 51%	minus .49%
2002	1 /4.9	1/10.3	minus - 52%	

**G. Comparison of Earned Run Averages**

	<b>Alum</b>	<b>Wood</b>	<b>Difference</b>	
1997	4.77	2.62	-2.15 or - 45%	
1998	5.01	3.50	-1.51 or - 30%	
1999	4.54	3.18	-1.36 or - 31%	
2000	4.11	3.15	-.096 or - 24%	minus 1.65 E.R.
2001	4.34	2.25	-.2.10 or - 48%	
2002	4.28	2.48	-.1.80 or - 42%	

As of 2002, over a 6-year period, each pitcher gave up 1.65 fewer runs per game when facing hitters using wood bats. That means on the average, there was 3.30 fewer earned runs each game.

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## Pitching

- I. E.R.A.** A comparison of E.R.A.'s aluminum bats versus wood – 74 Division I pitchers who pitched a minimum of 25 innings in the Cape Cod League during the 2002 season.

<u>ERA</u>	<u>Vs Aluminum Bat</u>		<u>Vs Wood Bat</u>	
	Number	%	Number	%
7.00 – Plus	3	4%	0	0
6.00 – 6.99	4	5%	0	0
5.00 – 5.99	14	19%	2	2%
4.00 – 4.99	23	31%	5	7%
3.00 – 3.99	17	23%	23	31%
2.00 – 2.99	10	13%	16	22%
1.00 – 1.99	3	4%	23	31%
0.00 – 0.99	-	0%	5	7%
	74	100%	74	100%

**Vs Aluminum Bats** 59% of the pitchers had an ERA of 4.00 or over; versus **Wood Bats**, only 8% of the same pitchers had an ERA of four or over.

**Vs Aluminum Bats**, 17% of the pitchers in this study had an ERA of under 3 runs per game; versus **Wood Bats**, 60% of the same pitchers had an ERA of under 3 runs per game.

**Vs Aluminum Bats**, the average ERA was 4.28

**Vs Wood Bats**, the average ERA was 2.48. That is a difference of minus -1.80 earned runs per pitcher and 3.60 fewer earned runs per game.

- II. Hits allowed per 9 innings pitched.**  
(vs 74 Division I pitchers)

**vs Aluminum Bats**  
(College) season

34% of pitchers allowed  
one hit or less per inning

5% of pitchers allowed  
fewer than 7 hits per 9 innings

Hitters with aluminum bats  
Hit .266 vs these pitchers

**vs Wood Bats**  
(Cape League Season)

83% of pitchers allowed  
one hit or less per inning

37% of pitchers allowed fewer  
than 7 hits per 9 innings

Hitters using wood hit  
.220 vs these same pitchers

Hitters using aluminum bats hit **twice as many home runs** against these pitchers than when using wood bats. Remember, the college line-ups are not nearly as talented as the hitters playing in the Cape League.

### Risk of Injury from Batted Balls

While this study focuses on the different performance levels between aluminum and wood bats, another major problem that needs to be addressed is the increased risk of injuries from batted balls off the present high performance aluminum bats.

It is well documented from lab, field tests, and various studies that the ball is hit with greater velocity, and hit faster more frequently off an aluminum bat. There are many reasons for this:

**1. Factors of increased batted ball exit speed:**

- a. Greater swing speed. A hitter can swing a lighter, better-balanced bat faster than a heavier or end-heavy bat.
- b. The trampoline and hoop effect of a thin hollow tube versus a solid wood bat.
- c. The balance point (MOI) of an aluminum bat is closer to the handle allowing greater head of the bat speed, and better bat control.

**Note:** In a test completed at Amherst College in November of 2002, 6 hitters had 90 recorded hits off a tee (stationary ball) with both wood (2) and aluminum (2) bats. **The average increase in batted ball exit speed was 5.9Mph when using aluminum bats.** This is a major and significant increase because with pitched ball speed and the trampoline effect added, the batted ball exit speed off aluminum will dramatically increase over that off wood

**2. The ball comes off an aluminum bat faster and more frequently faster.**

- a. The **diameter** of the bat is larger and stays larger longer down the length of the bat.
- b. Sherwood states that the **sweet spot** is 4 times larger than in a normal wood bat.
- c. The bat is **better balanced** – a hitter can control the swing better, start the swing later, and track the pitch longer (good contact more frequently leads to higher batting averages).
- d. Over a six year period, hitters **struck out 7.3% more often** when using wood bats. Pitchers won't be struck by batted balls when the hitter strikes out.
- e. The Cape Cod League study demonstrates how differently the game is played using wood.

Over a six (6) year period:

**Batting averages** decreased by .091 points

**Slugging %** decreased by .190 points

**Home runs** decreased by .61%

**Pitchers earned run averages** decreased by 1.65 per pitcher and 3.30 earned runs per game.

**Major Question: Why don't various lab test results correlate to bat performance in the field, in games or even during batting practice?**

- f. Players are now **bigger and stronger** than years ago and hit the ball **harder and faster**, when they make good contact. Fielders do not have as much time to field the batted ball or to defend themselves.

P10.

- g. If a player is struck by a batted ball hit with greater velocity, **chances are** there will be a **more severe injury**.
- h. If experienced major league pitchers are being struck by line drives off wood bats, then **we should not be using bats that out perform wood**. Amateur pitchers have less experience than pro pitchers and often are not aware of the danger and don't anticipate and react properly.
- i. Versus aluminum bats, most pitchers cannot pitch inside with the fastball effectively; they have to pitch away more often. There are more balls hit up the middle (towards the pitcher) on **outside pitches** than on inside pitches. Again, this factor **increases the risk of injury**.
- j. By 1998, the NCAA Umpire Improvement Program Committee was so concerned about the **safety of their field (base) umpires**, that they instituted an umpire **position change**, and moved the field umpires back further away from home plate to give them more time to react to batted balls.

Could all of these injuries we have experienced since the mid 90's thru 2002 occurred with balls hit off wood bats, maybe, we will never know. But, **chances are they would not have occurred as frequently because; off wood bats:**

- 1. The pitchers would have more time to react since the ball is not hit as fast off wood.
- 2. The balls are not hit hard as frequently off wood.

Conclusion:

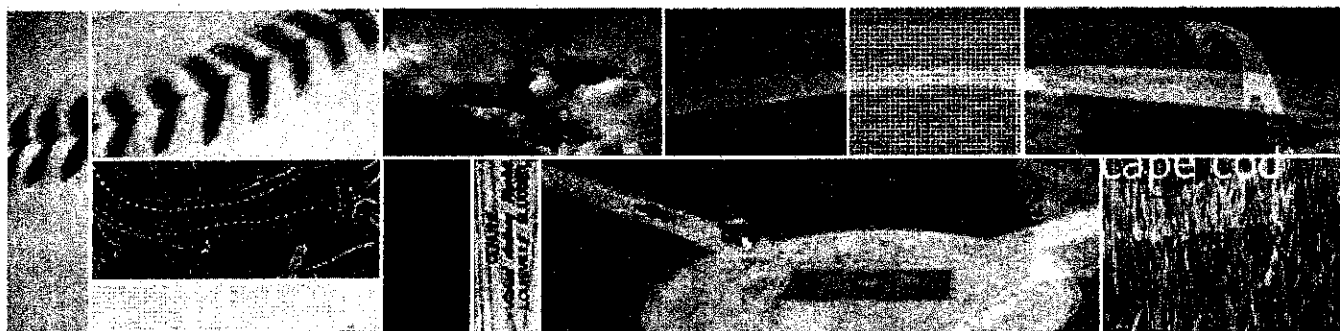
Based on the statistical evidence of this comprehensive study, and statistics developed over the past six (6) years, I believe it is indisputable that the collegiate game played with the present high performance aluminum bats, is not remotely close to the traditional game played with wood bats. For the safety of the players, to bring the game back in balance, and to restore the integrity of the game, I hope that in the near future, true wood performance standards are put in place at all levels of amateur baseball.

I am not advocating a return to wood bats only. I believe aluminum and composite bats can be manufactured to perform, during games, at a true wood bat performance level.

Coach Bill Thurston  
Amherst College  
November, 2002



# Cotuit Kettleers



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## Lowell Park a Virtual Baseball "Mecca" Says ESPN

### Cape Cod Baseball League, Kettleers and Coach Mike Roberts Featured on ESPN's Web Site

By David Albright/ESPN; Photo of Lowell Park by Paul Andrews

The real "field of dreams" shouldn't have been about a cornfield in Iowa filled with baseball's past. The real "if you build it, they will come" scenario should have been about the annual two-month lovefest with baseball's future known as the Cape Cod Baseball League.

From Chatham to Wareham on this famous stretch of land about an hour south of Boston, nothing is a better central-casting depiction of what baseball should look like and sound like than the 10-team college summer league that attracts the best players and caters to a fan base that ranges from small children to the elderly.



Here at picturesque Elizabeth Lowell Park, home of the Cotuit Kettleers, a Sunday afternoon in July looks like a scene right out of a Norman Rockwell painting.

It's still three hours before game time, but the 60-year-old ballpark that is surrounded on all sides by a forest of pine trees is already buzz with activity.

Kettleers assistant coach Adam Warchal, fresh from putting a new coat of yellow paint on the right- and left-field foul poles, is helping fellow assistant Jeremy Boles chalk the first- and third-base lines. Later, they will rake and water the infield to complete their duties as the de facto grounds crew.

As Cotuit manager Mike Roberts prepares to throw batting practice to his collection of players that have come here from as close as New Jersey and as far away as California, he rattles off everything that helps set the Cape league apart from the rest of summer college baseball offerings.

First, there are the people who open up their homes and house the players from June to August. Then there are the year-round volunteers

who help run every part of the organization.

But it's the fans across the entire league that Roberts marvels at the most.

How I spent my summer

Have you wondered how college athletes and coaches spend their summers? Most use the break to catch up on classes or prepare for upcoming seasons. ESPN.com, however, caught up with a few who are breaking that mold this summer.

"It's a mini-Red Sox Nation," Roberts said. "And people who don't understand Red Sox Nation can't understand the Cape league. Why would thousands of people come out to watch college baseball? They understand the game, they understand the league and they understand the tradition.

"If the center fielder for the other team makes a diving catch, our fans will clap for him. The only place in America that happens is Omaha, Neb., that I know of. And there's no home team in Omaha, so it's everybody wanting to see good baseball. It's the same thing here. It's very special."

Roberts isn't the only one who notices the quality of the eyes watching the 200-plus college players who are fortunate enough to be invited to the Cape each summer.

"It's a whole different environment up here," said Texas outfielder Kyle Russell, a first-year Cape player. "I didn't know the crowds were going to be so amazing -- especially for summer-league ball. In the summer you usually have crowds of a hundred people or so. Here you've got thousands cheering you on, then you've got the wood bats, the pitching here is amazing and the competition is outstanding.

"Playing baseball every single day with wooden bats and a lot of competition, that's the real life of pro ball, and it's good that we get the adjustment to think about that. Everyone talked about how the competition was going to be unbelievable, but now that I see it with my own eyes, I can finally agree with them. This is the real deal."

One of the most talked-about aspects of the Cape league from the players' perspective is that it's a wood-bat league. The crack of the bat replaces the familiar aluminum ping that's heard throughout college baseball in the spring.

That equipment change takes some getting used to for the hitters, and on this evening the pitchers clearly had an edge as Falmouth topped Cotuit 2-0 in front of an overflow crowd of 1,584 in a park that's official seating capacity is listed as 600. Clemson's David Kopp threw seven innings of one-hit ball to pick up the win for the Commodores. On the other side, Riverside's James Simmons allowed only four hits and one earned run in his 7.2 innings of work.

"The biggest adjustment is the wood bat and the competition," said South Carolina first baseman Justin Smoak, another player spending his first summer on the Cape. "It's unbelievable. Every day you'll see guys throwing upper 80s or 90 with good off-speed stuff. It's great to get out here and play against guys like that, because if you want to play at the next level, that's what you're going to see."

And that's what the dozen or so MLB scouts who line the backstop behind home plate are here to see, too. Their radar guns and stopwatches chronicle every move, but it starts well before the first

pitch.

Several scouts showed up a couple hours before the game to watch batting and fielding practice, as well, and they scribbled notes throughout the pregame workouts.

"You know that how you play here is going to be used to decide how you're going to do in the draft and whether or not you're going to have a future there," said Notre Dame catcher Sean Gaston, who was the 2005 Cotuit MVP.

"If the center fielder for the other team makes a diving catch, our fans will clap for him. The only place in America that happens is Omaha, Neb., that I know of. And there's no home team in Omaha, so it's everybody wanting to see good baseball. It's the same thing here. It's very special."

-- Cotuit manager Mike Roberts "You either get used to it or you're going to struggle the whole time."

Enough batters and pitchers adjust during the summer season or the scouts wouldn't show up in the numbers they do.

"To me, the proof is in what transpires," Roberts said. "How many of the guys get to the big leagues? That's what tells me whether or not it's consistently the best [summer] league."

Based on the results, the Cape's reputation is well-deserved.

According to league statistician John Wylde, nearly 40 percent of MLB players who attended a four-year school before advancing to the majors made a summer stop on the Cape during their college careers.

The list of Cape league alumni who were on 2005 MLB rosters reads like a who's who of professional baseball, with names that include: Jeff Bagwell (Chatham '87-88), Kris Benson (Hyannis '94), Craig Biggio (Yarmouth-Dennis '86), Sean Casey (Brewster '94), Darin Erstad (Falmouth '93-94), Nomar Garciaparra (Orleans '93), Todd Helton (Orleans '94), Mike Lowell (Chatham '94), Mark Teixeira (Orleans '99), Jason Varitek (Hyannis '91-93), Billy Wagner (Brewster '92) and Barry Zito (Wareham '97-98).

A quick look at this summer's Cape rosters reads like a who's who of college baseball, including many players from every team that advanced to last month's College World Series.

"The biggest thing about [this league] is the level of competition," Gaston said. "You know you're playing against the best guys in the country day in and day out. This is absolutely the place to play. If you ask anyone one place they want to play in the summer, it's the Cape."

"This is the place you dream about playing."

David Albright is the senior coordinator for college sports at ESPN.com. He can be reached at david.albright@espn3.com.

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## Wagner College Baseball

Head Coach Joe Litterio

Assitant Coaches Jim Agnello, Jason Jurgens

October 20, 2006

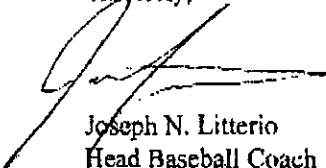
Steven Matteo  
Chief of Staff  
Office of Council Member James S. Oddo

Dear Mr. Matteo,

After speaking with you and hearing the argument that banning aluminum bats in high school would diminish a student-athletes chances of receiving a baseball scholarship, I have decided to write you this letter giving you a better understanding of college recruiting.

College coaches get on the road and find talent. We look for a range of different things when recruiting. How the athlete conducts himself on the field in different situations, foot speed, arm strength, fielding, and hitting. We try to get as much information on the student-athlete as possible to figure out if he would fit in our program. If we were to go on stats alone, we would not be doing our job. We do look at stats, but we have to take into consideration what level of baseball the student-athlete is playing at. A student-athlete with great stats in a lower conference may not be as good as a student-athlete with less stats in a higher conference. That would be the same if the student-athlete was using an aluminum bat or a wooden bat. The bottom line is that a student-athlete is not recruited on his stats alone. As stated above, college coaches take all of these variables into consideration and get out on the road to see if the student-athlete would fit in their program.

Sincerely,



Joseph N. Litterio  
Head Baseball Coach  
Wagner College  
Staten Island, NY 10301